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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Klaus Rebhan

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05/18/2004

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EXAMINER

TRAN, KHANH C

ART UNIT

PAPER NUMBER

2631

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11

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/751,082

Applicant(s)

REBHAN ET AL.

Examiner

Khanh Tran

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 February 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-11, 13-17, 19 and 20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 20 is/are allowed.
- 6) ☒ Claim(s) 1-6, 9-11, 13-17 and 19 is/are rejected.
- 7) ☒ Claim(s) 7 and 8 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. The Amendment filed on 02/27/2004 has been entered. Claims 1-11, 13-17, and 19-20 are pending in this Office action. Claims 12 and 18 are cancelled.

### ***Response to Arguments***

2. Applicant's arguments with respect to claims 1-2, 5, 8-10, 13-14, and 16-17, and 19 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Objections***

3. Claim 10 is objected to because of the following informalities: "the base station" should be changed to -- base station. --. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3, 5, 9-10, 13-17, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishifuji et al. U.S. Patent 6,061,389.

Regarding claim 1, figure 4 illustrates a block diagram of a base station 300 including a transmitting part, and a receiving part (not shown in the figure) arranged in the same manner as the receiving parts (103, 117, 151) shown in figure 3. The transmitting part and the receiving part communicates with a mobile station 500 as shown in figure 5 using one of the hopping sequence from a set of hopping sequences HFP1, HFP2, ... as shown in figure 7B. As appreciated by one of ordinary skill in the art of frequency hopping method, a frequency hopping sequence inherently includes all the claimed limitations that are recited here "*the hopping sequence is made up of a defined temporal sequence of transmission/reception frequencies*" and "*in one hopping sequence each transmission/reception frequency is followed by a defined successor transmission/reception frequency*" and "*where each of the set of hopping sequences differs from the other hopping sequences*".

The base station 300 in figure 4 includes in the transmitting part a base station ID generating circuit 222, a hopping pattern ID table 226, and a frequency hopping pattern table 221. Ishifuji et al. teachings do not expressly disclose an identification device as claimed in the pending patent application. Nevertheless, as appreciated by one of ordinary skill in the art that the base station ID generating circuit 222, the hopping pattern ID table 226, and the frequency hopping pattern table 221 constitutes and performs equivalently all the functions of the claimed identification device, as will be explained in the following. First, the base station ID generating circuit 222 would include the base station

identification (ID) (see figure 7A), corresponding to the claimed "information on identity of the base station". The frequency hopping pattern table 221 stores hopping frequency sequences. In column 10, lines 62-65, Ishifuji et al. expressly discloses that the mobile station 500 shown in figure 5 includes a hopping pattern ID table 526 and the frequency hopping pattern table 521 having the same arrangements as the base station as shown in figures 7A and 7B. Hence, similar arrangements in other base stations and mobile stations would have been obvious for one of ordinary skill in the art in light of the foregoing teachings, and consequently the stored hopping frequency sequences in the frequency hopping pattern table 221 are known to base stations and mobile units in a communication system such as shown in figure 1. The foregoing teachings address the claimed features "*where the identification device is arranged for storing a base hopping sequence known to base stations and mobile stations in a communication system*".

As disclosed in column 10, lines 38-57, the hopping pattern ID table 226 of the base station is a translation table for deriving a frequency hopping pattern ID HPI from the base station ID BSi. The frequency hopping pattern table 221 is a translation table for deriving a set HFPI of hopping frequencies from the hopping pattern ID HPI. In light of the teachings, for each base station ID BSi, a hopping pattern ID HPI is derived, and a set HFPI of hopping frequencies is derived from the hopping pattern ID HPI using the stored frequency hopping sequences in the frequency hopping pattern table 221. Hence, each base station ID BSi has one

exactly corresponding hopping sequence (set of hopping frequencies), and such arrangement is illustrated in figure 7A and 7B. The foregoing teachings address the claimed features "where the identification device is arranged for calculating the exactly one hopping sequence using the stored base hopping sequence and the information on an identity of the base station".

Regarding claim 2, as recited in claim 1, each base station identifier outputted from the base station ID generating circuit 222 corresponds to one hopping pattern identifier, which has a correspondent set of hopping frequencies. By changing the base station identifier, the hopping pattern is changed correspondently. From figure 7B, each hopping pattern inherently includes all frequencies within a fixed frequency band.

Regarding claim 3, Ishifuji et al. does not disclose any particular frequency band (e.g. including ISM bands as claimed) in the invention in which the frequency hopping communication system operates. As well known in the art of spread spectrum communications, frequency-hopping method is widely used in various frequency bands including ISM bands as claimed for wireless applications, and has been cited in the prior art of previous Office action. For that reason, it would have been obvious for one of ordinary skill in the art at the time the invention was made that Ishifuji et al. frequency hopping communication system could be easily modified to operate in various wireless frequency bands such as ISM bands.

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Regarding claim 5, as recited in claim 1, the base station ID generating circuit 222, in column 10, lines 5-14, outputs the base station identifier as an index.

Regarding claim 9, Ishifuji et al. discloses in figure 5 a mobile station 500 including a transmission part and reception part for communicating with a base station. The hopping sequence as defined in the claim has been addressed in claim 1. The mobile station 500 includes a base station ID register 522, a hopping pattern ID table 526, and a frequency hopping pattern table 521.

As recited in claim 1, In column 10, lines 62-65, Ishifuji et al. expressly discloses that the hopping pattern ID table 526 and the frequency hopping pattern table 521 of the mobile station 500 shown in figure 5 has the same arrangements as the base station as shown in figures 7A and 7B. As appreciated by one of ordinary skill in the art in light of the foregoing, the claimed storage facility is in the form of the base station ID register 522, a hopping pattern ID table 526, and the frequency hopping pattern table 521 in the mobile station 500 as taught in Ishifuji et al. invention. As recited in claim 1, the aforementioned components store a set of hopping sequences HFP1, HFP2, ... containing information about a hopping sequence, associated to one particular base station, being used to communicate with that particular base station. The base station identifier, which includes identity information of the particular base station as claimed in the pending patent application, is set to the base station ID register 522.

Ishifuji et al. does not expressly disclose a synchronization device as claimed in the pending patent application. However, in column 10 line 53 through column 11 line 15, microprocessor 113, base station ID register 522, hopping pattern ID table 526, frequency hopping pattern table 521, and hopping control 531, all together, perform similar tasks as the claimed synchronization device, the tasks being explained further in the following. When the mobile station 500 receives a frame transmitted by the base station 300, the microprocessor 113 extracts a proper base station identifier from the frame and set the base station identifier to a base station ID register. With the similar method to the base station as recited in claim 1, the particular hopping sequence is derived by using the hopping pattern ID table 526 and the frequency hopping pattern table 521. The teachings further discloses that while the mobile station 500 is operated in synchronous to the base station, the hopping control 531 operates to turn a switch 532 to a search pattern table 530. In this case, the frequency of the local oscillation signal outputted from the synthesizer 111 is sequentially switched according to the frequency search pattern for establishing the synchronization. In light of the foregoing, the transmitting and receiving parts of the mobile station 500 are activated without the need to send synchronization data to the base station as claimed in the pending patent application.

As recited above, with the similar method to the base station as recited in claim 1, the particular hopping sequence is derived by using the hopping pattern



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ID table 526 and the frequency hopping pattern table 521, corresponding to the claimed means for calculating the specific hopping sequence.

Regarding claim 10, as shown in figure 6, the frame structure transmitted by the base station includes a base station ID 70, and information 707. Hence, during registration at the mobile station, the mobile station extracts a base station identifier from the base station ID field 710, and the base station identifier is set to a base station ID register 522. At the same time, the information 707 is received and stored in a memory device as appreciated by one of ordinary skill in the art, in the mobile unit.

Regarding claim 13, said claim claims a communication network comprising a base station as set forth in claim 1, and a mobile unit as set forth in claim 9. Both claims 1 and 9 are rejected above. Hence, claim 13 is rejected on the same ground as claims 1 and 9.

Regarding claim 14, figure 1 illustrates a synchronous network system including a base station 402, and mobile stations 407-1 407-2. Ishifuji et al. discloses in column 7, lines 26-36. The base station 402 located inside the cell and the cell itself has a pre-specified common frequency hopping pattern so that the base station 402 and the mobile stations 407 do hopping in synchronization for transmitting and receiving the signal with the same frequency hopping pattern. As shown in figure 7A and 7B, each

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base station has different base station identifier corresponding to different hopping pattern ID and different hopping pattern.

Regarding claim 15, figure 1 illustrates a frequency hopping communication system having a plurality of wireless mobile stations and at least one base station. Hence, it would have been obvious for one of ordinary skill in the art at the time the invention was made that the frequency hopping communication system could have more than one base station as implied in Ishifuji et al. teachings. Each base station has a different base station identifier corresponding to different hopping pattern, see figure 7A and 7B. Furthermore, as will be appreciated to one skilled in the art, each mobile unit could be configured to utilize a pre-specified common frequency hopping pattern associating with one base station so that the base station and the mobile stations do hopping in synchronization for transmitting and receiving the signal with the same frequency hopping pattern in the network. Such described network is an asynchronous network due to multiple base stations.

Regarding claim 16, said claim claims a method for operating a base station performing tasks as set forth in claim 1. Hence, claim 16 is rejected on the same ground as in claim 1.

Regarding claim 17, said claim claims a method for operating a mobile station performing tasks as set forth in claim 9. Hence, claim 17 is rejected on the same ground as in claim 9.

Regarding claim 19, the preamble describes a mobile unit as set forth in claim 9, and a base station as set forth in claim 1, the preamble is rejected on the same ground as in claims 1 and 9.

As recited in claim 1, the mobile station 500 as shown in figure 5 employs a hopping pattern ID table 526 and a frequency hopping pattern table 521, both having the same arrangements as the base station as shown in figure 7. Ishifuji et al. does not expressly disclose communicating information about the identity of the base station to the mobile unit using a predefined registration hopping sequence as claimed in the pending patent application. Nevertheless, when the mobile station 500 as shown in figure 5, receives a frame as shown in figure 6 transmitted by the base station 300, the microprocessor 113 extracts a base station identifier inside the frame and derives the hopping pattern from the base station ID through quick synchronization process in order to obtain the hopping pattern of the base station. In light of the foregoing, one of ordinary skill in the art appreciates that the hopping pattern carrying the frame as shown in figure 6 is known to both the mobile unit and the base station, and is equivalent to the predefined registration hopping sequence as claimed in the pending patent application. Furthermore, the extracted base station identifier is stored in the

base station ID register 522, corresponding to the step of storing the information about the identity of the base station. The foregoing process inherently activates the registration mode for the base station.

5. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishifuji et al. U.S. Patent 6,061,389 as applied to claim 1 and further in view of Dicker et al. U.S. Patent 6,625,466 B1.

Regarding claim 4, Ishifuji et al. do not specifically disclose the base station is constructed using an OSI layer model with the base station constructed in such a way it can work as claimed in the instant application according to the DECT standard. However, Ishifuji et al. discloses in the summary of the invention column 2, lines 58-65 that the invention provides a MAC frame structure suited to Media Access Control (MAC) process. Furthermore, Dicker et al. invention discloses, in another US Patent, a method for regulating transmitting power of a mobile station in which information are transmitted in different carrier frequencies with a frequency hopping method. The mobile station is operated on the DECT standard or a similar standard. Ishifuji et al. system provides a MAC frame structure suited to Media Access Control (MAC) process, but does not specifically disclose using OSI layer model. However, it would have been obvious for one of ordinary skill in the art at the time the invention was made that Ishifuji et al. frequency hopping communication system could be implemented to utilize OSI layer model because MAC layer is lower than the data link layer and the network layer in an OSI layer model as well known in the art. Furthermore, Ishifuji et al. frequency

hopping communication system could be configured to operate according to the DECT standard as Dicker et al. points out in another US Patent a mobile station operated on the DECT standard utilizing a frequency hopping method.

6. Claims 6 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishifuji et al. U.S. Patent 6,061,389 and Dicker et al. U.S. Patent 6,625,466 B1 as applied to claim 1 and further in view of Leickel et al. U.S. Patent 6,631,264 B1.

Regarding claim 6, Ishifuji et al. does not disclose the base station ID generating circuit 222 including a RFPI number according to the DECT standard. Dicker et al. discloses a mobile station operated on the DECT standard utilizing a frequency hopping method, but does not specifically disclose a RFPI number according to the DECT standard. Leickel et al. discloses in column 5, lines 61-67 that the DECT standard defines the ARI (Access Right Identifier) and the RPN (Radio Fixed Part Number). The RPN and the ARI together form the RFPI (Radio Fixed Part Identity). Leickel et al. further teaches that the handset needs this information in order to identify a base station. As pointed out above, it would have been obvious for one of ordinary skill in the art at the time the invention was made that Ishifuji et al. frequency hopping communication system could be modified to operate according to the DECT standard as taught by Dicker et al. in another US Patent, and to include the RFPI number as part of the base station identification portion as disclosed by Leickel et al..

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Regarding claim 11, said claim is rejected using similar rejection argument as claim 6 because of operation of a base station and a mobile station is similar. Furthermore, figure 1 illustrates a network system including a base station 402, and mobile stations 407-1 407-2. As recited in claim 6, the handset needs the RFPI in order to identify a base station. Hence, it would have been obvious for one of ordinary skill in the art of wireless communications system that the mobile station receives the RFPI number along with the base station identifier transmitted by the base station. As disclosed in Leickel et al. invention, the RPN and the ARI together form the RFPI (Radio Fixed Part Identity). The RFPI inherently includes a FPN (Fixed Part Number).

***Allowable Subject Matter***

7. Claims 7-8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. Claim 20 is allowed.

Said claim is allowed because prior art of record does not teach or suggests the claimed features "where the identification device is arranged in such a way that it allocates a defined hopping phase to the base station where the hopping phase defines by how much the hopping sequence used for communication by the

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transmission/reception device is temporarily offset from the same hopping sequence used by a different radio cell of the base station in a synchronous network".

### **Conclusion**

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khanh Tran whose telephone number is 703-305-2384. The examiner can normally be reached on Tuesday - Friday from 08:00 AM - 05:00 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on 703-306-3034. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KCT

  
MOHAMMAD H. GHAYOUR  
PRIMARY EXAMINER